

(No Model.)

2 Sheets—Sheet 1.

J. J. SOUDER.
DUMPING CAR.

No. 463,173.

Patented Nov. 17, 1891.

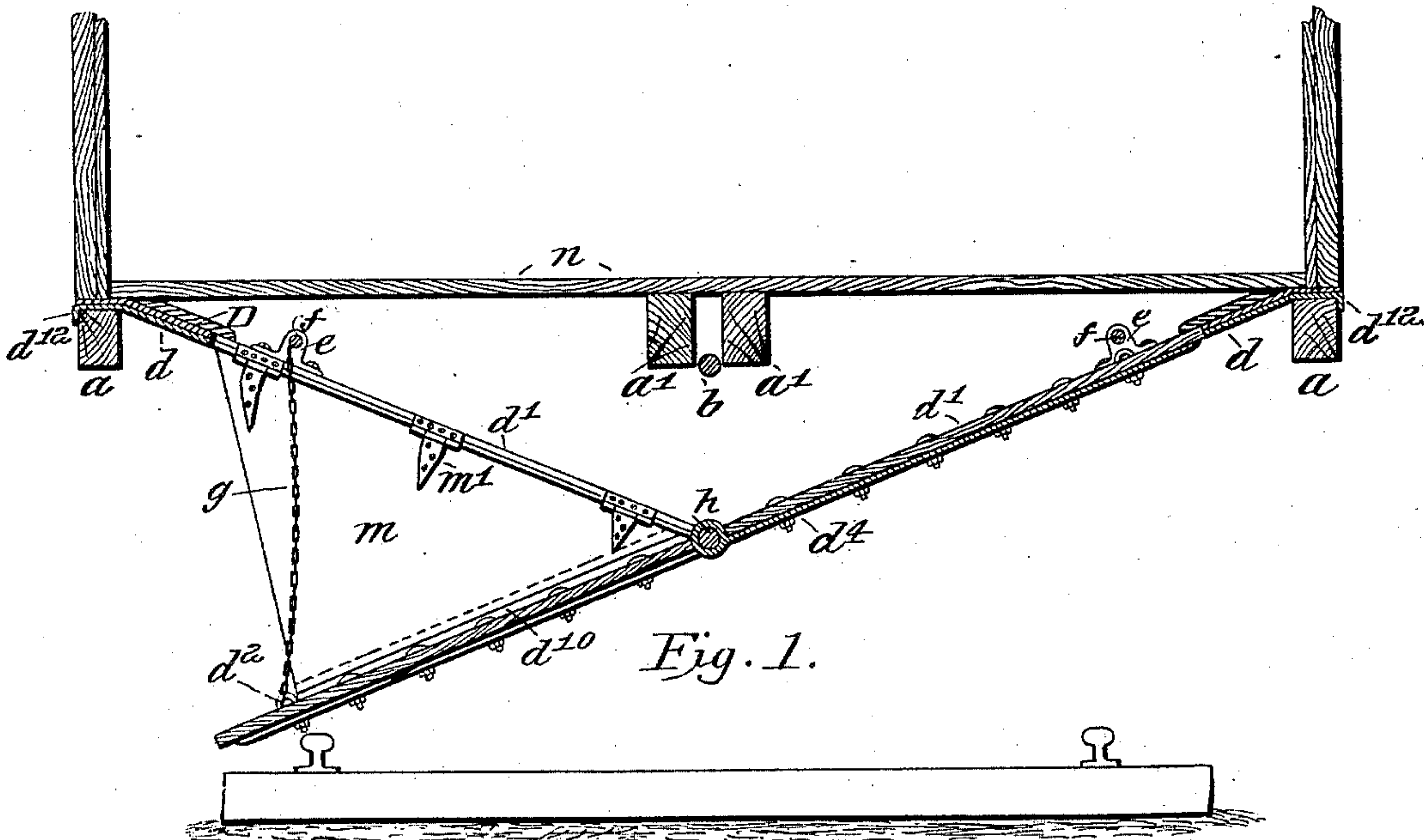


Fig. 1.

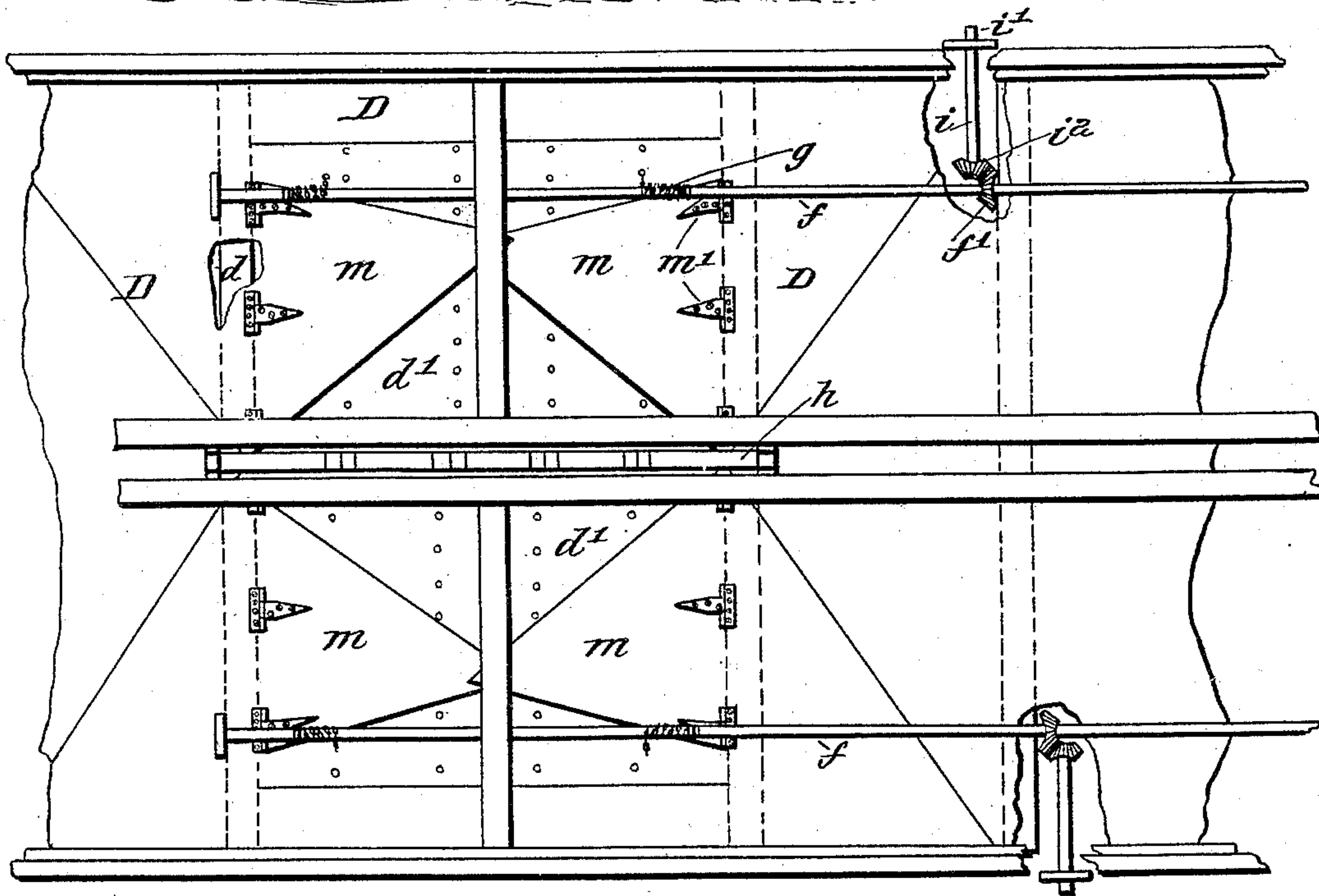


Fig. 2.

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by *A. Ashley*
Atty.

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2 Sheets—Sheet 2.

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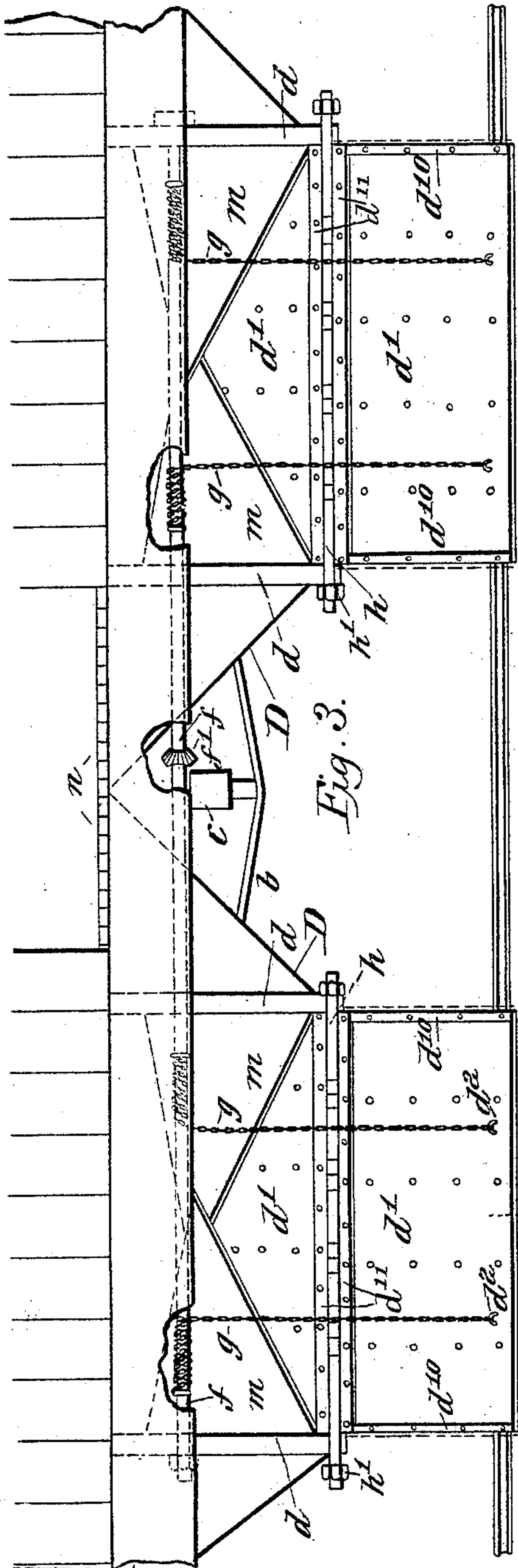


Fig. 3.

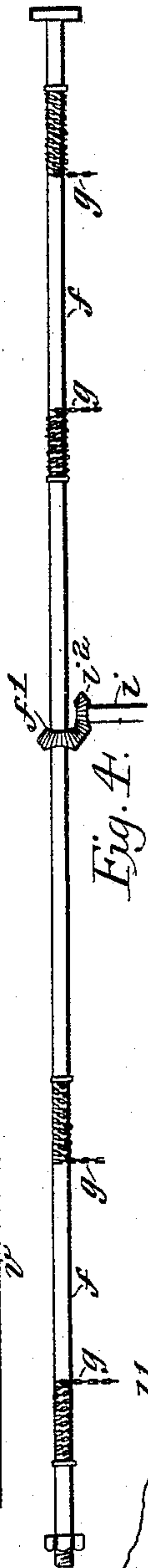


Fig. 4.

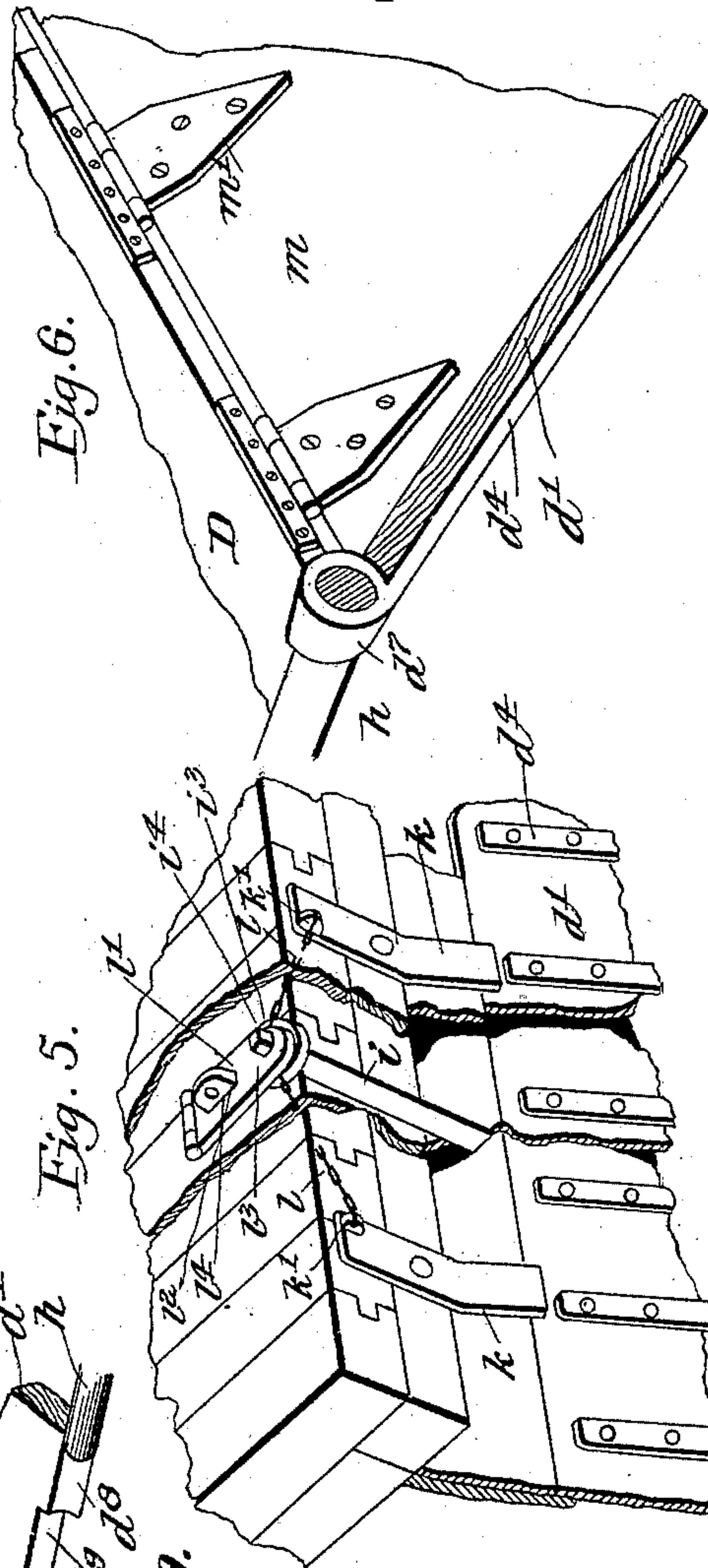


Fig. 5.

Fig. 7.

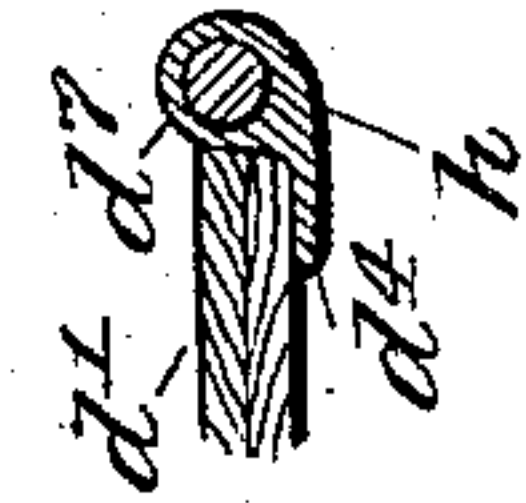
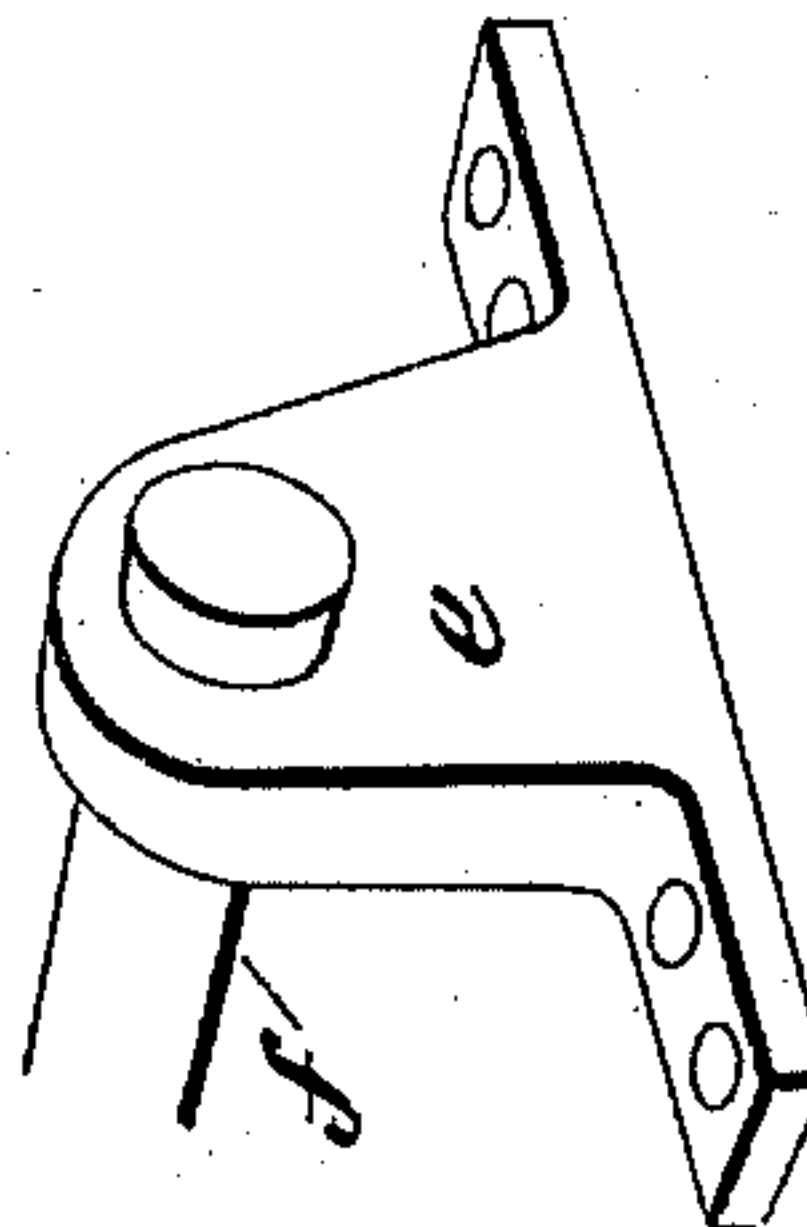


Fig. 8.

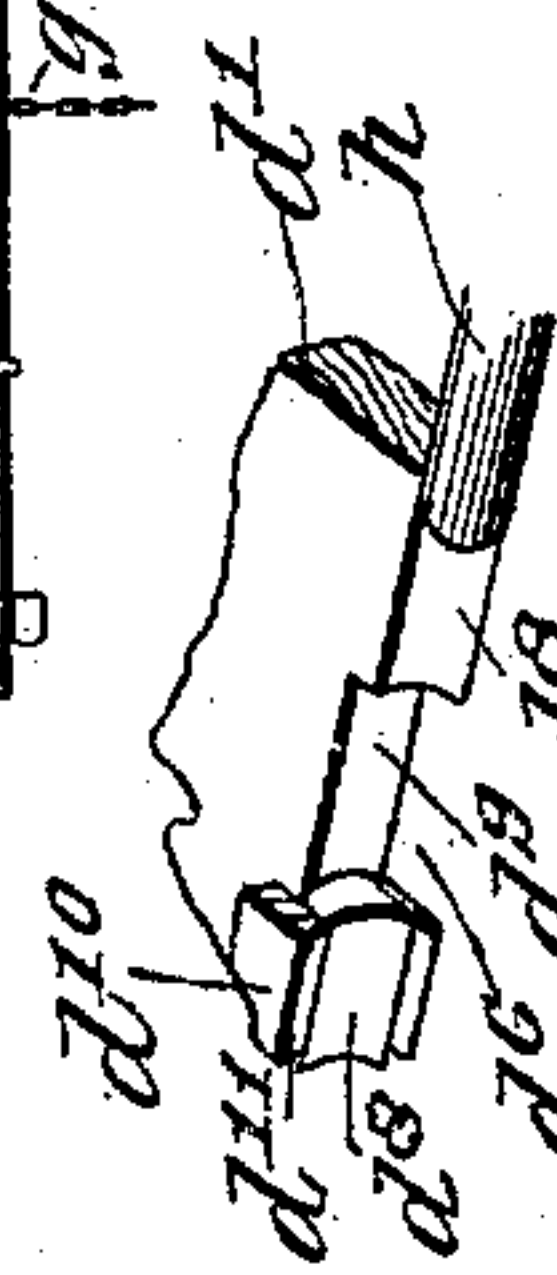


Fig. 9.

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UNITED STATES PATENT OFFICE.

JACOB J. SOUDER, OF WASHINGTON, DISTRICT OF COLUMBIA.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 463,173, dated November 17, 1891.

Application filed February 20, 1889. Renewed October 12, 1889. Again renewed April 30, 1890. Again renewed March 17, 1891.
Serial No. 385,347. (No model.)

To all whom it may concern:

Be it known that I, JACOB J. SOUDER, a citizen of the United States, residing in the city of Washington, in the District of Columbia, have invented a new and useful Dumping-Car, of which the following is a description.

The invention relates to a dumping-car in which the dumping-doors are hinged to a central longitudinal bearing-bar or hinge-rod which is suspended beneath the body of the car at a point preferably about midway between the upper surface of the bed-frame and the top of the road-bed, and in which the dumping-doors or drop-sections of the hopper or hoppers of the car are of such extent, measuring outwardly from their central longitudinal bearing-bar, that when in their discharging position they will extend beyond and will discharge at a point outside of the track-rails.

The objects of the invention are to simplify and cheapen the construction of the parts in a hopper-bottomed dumping-car, to render more certain and effective the operation of the closing, securing, and discharging mechanism, and to provide further means for increasing the strength of the hoppers and preventing sagging of the same.

The invention consists in the novel means provided for effecting these objects, as will be described with particularity, and then specifically indicated in the concluding clauses of this specification.

In the accompanying drawings, Figure 1 represents a transverse vertical section of the car, as on the line indicated at *v* in Fig. 3. Fig. 2 is a fragmentary top plan view, the dumping-sections being represented as in their closed position. Fig. 3 is a side elevation of the central portion of the car, the near dumping-sections being represented as open, while the coincident dumping-sections are seen as closed, corresponding to the arrangement seen in Fig. 1 when looking from the left toward the right of that figure. Fig. 4 represents a top plan view of the elevating mechanism detached. Fig. 5 is a detail showing in elevation a portion of the side and of the bottom of the car, sections being broken out, and showing also the auxiliary supports for the

dumping-sections. Fig. 6 is a detail, drawn to an enlarged scale, indicating the relation of the wings or pivoted plates which form the sides of the discharge-chutes to the body of the hopper and to the dumping-section or drop-door which constitutes the bottom of such discharge-chute. Fig. 7 represents a view, drawn to an enlarged scale, of one of the brackets in which the elevating-shafts are journaled. Fig. 8 is a detail representing a modification of the construction shown in Fig. 6. Fig. 9 is a detail of one of the dumping-sections, showing the configuration of the meeting edges.

The exterior longitudinal sills *a a* and the central longitudinal sills *a' a'* are of ordinary construction. Between and below the central longitudinal sills is the longitudinal truss-rod *b*, which at its mid-length receives the central cross-frame tie-timber or transverse sub-sill *c*.

At each end of the discharging-chute of each hopper *D* is a transverse supporting-bar *d*, which by its downturned ends *d¹² d¹²* is secured to one of the exterior longitudinal sills, and which at its central and lowest portion receives one end of a longitudinal hinge rod or bar *h*, to the body of which are hinged by a direct connection the oppositely-placed dumping-sections *d' d'*, each of which upon its upper surface and near each end has a vertical ridge or stop *d¹⁰*, and each of which near its outer edge has one or more eyes *d²*. Upon the transverse supporting-bars *d*, at each end and near the highest portion thereof, is secured by bolts or equivalent means one of the brackets or journal-bearings *e*, which receive the elevating-shaft or chain-shaft *f* of the elevating mechanism, and which carries bevel-wheel *f'* and chains *g g*, the opposite ends of which are secured to the eyes *d²* in the body of the dumping-sections. A transversely-extending winding-shaft *i*, journaled in bearings secured in the bed-frame of the car, terminates outwardly in a squared end *i'* to receive a suitable winch and inwardly in a bevel-wheel *i²*, which through bevel-wheel *f'* actuates the longitudinal shaft *f*.

Swivel-bars *k k* are secured upon the bottom of the bed-frame, and chains *l l* are connected by one end to lugs *k'* upon the swivel-bars

and by the opposite end to a ring i^3 upon the transverse shaft i , thereby securing the swivel-bars in their locked position. It will be understood that the chains l may be attached, detachably or otherwise, each to an independent ring, or that both may be in like manner attached to a single ring. In either case the shaft and chain serve to secure the swivel-bars in their engagement with the dumping-sections.

In practice the transverse shaft will be provided with a ratchet-wheel and a pawl, as in the construction shown in my application filed on the 19th day of June, 1888, and serially numbered 277,581.

A locking-plate l' , pivoted to the body of the car, has an opening l^4 to engage an eye or staple l^2 , which is fixed in the body of the car, and an opening l^3 , which receives the squared end i^4 of the winding-shaft i . The eye l^2 receives a padlock or other suitable securing appliance, and the engagement of the end i^4 by the locking-plate additionally secures the winding-shaft against rotative movement. The pivoted plates or wings m , which constitute the sides of the discharging-chutes, are at their upper edges secured by T-hinges m' to the body of the hopper D. In closing the dumping-sections these wings are swung inwardly, their ends overlapping when the wings are fully closed, as seen in Fig. 2. In the operation of discharging, the closing and locking appliances being fastened, the dumping-sections fall to the limit of their elevating-chains, the wings at the same instant falling into position to constitute the sides of the chute, the outer face of their lower extremity engaging the inner face of the flange or stop d^{10} upon the dumping-sections and the edge of the wing fitting closely upon the face of such sections.

A floor n (seen in Figs. 1 and 3, and in practice formed in detachable sections, as in application filed by me in United States Patent Office, December 7, 1887, Serial No. 257,218) may, if desired, be used in connection with the hoppers for granular material, the floor being available at will when it is desired to use the upper portion of the car for the transportation of miscellaneous merchandise in the ordinary manner of using box-cars.

The dumping-sections may be of a single piece or thickness, as in Figs. 1 and 6, or of two thicknesses, as in Fig. 8, and either wood or metal may be employed. As best seen in Figs. 1 and 6, the dumping-sections are provided upon their outer faces with a series of hinge-bars d^4 , which are by preference secured to the body of the section by through-bolts d^5 . At the inner extremity of the section the ends of the bars are bent around or are formed into a ring or eye d^7 to receive the body of the supporting hinge rod or bar h , the ring or loop upon one of the sections being arranged end to end with the corresponding ring upon the coincident section.

The meeting edges of the dumping-sections are provided at suitable intervals corresponding with the number of the hinge-bars with recesses d^6 , each of which has a curved groove d^8 and is adapted to receive two of the loops or rings of the hinge-bars placed end to end, as before stated. To insure the requisite strength, the bent-around ends of the bars are welded to the body of the same. In assembling the parts two opposite dumping-sections are placed in position, the hinge-eyes of each received within the opposing recess of the other. The hinge-rod h is then inserted endwise within the series of eyes, one or both ends of the rod when in place receiving a securing-nut h' . When the body of the section d' is of wood, as herein shown, the edges are protected by a metallic strap or plate d^{10} , which is secured upon the section above and below. This protecting-plate projects slightly over the edge of the section, and its edge may have a shallow groove d^{11} in continuation of the groove d^8 in the body of the section and corresponding to the curvature and dimensions of the hinge-rod or shaft h .

Having described my invention, I claim—

1. The combination, with the bed-frame of the car, of the described transverse supporting-bars resting by their ends upon the exterior longitudinal sills, the longitudinal hinge-rods wholly supported by such transverse bars, and the dumping-sections having hinge-bars d^4 , the inner extremity of which encircles the longitudinal hinge-rods.

2. The combination, with the transverse supporting-bars, of the hinged dumping-sections, the brackets or journal-bearings secured upon the transverse supporting-bars, the longitudinal chain-shaft in such bearings, and the transverse actuating-shaft which engages the chain-shaft to effect the closing of the dumping-sections.

3. The combination, with the dumping-sections, the transverse and longitudinal shafts, and the swivel-bars pivoted to the body of the car, of the chains g , connected to the dumping-sections and to the chain-shaft, and the chains l , connected to the transverse shaft and to the swivel-bars, substantially as and for the purposes set forth.

4. The combination, with the dumping-sections, of the transverse shaft, the swivel-bars pivoted upon the car, and the chains l , connecting the transverse shaft and the swivel-bars.

5. The combination, with the hinge-rod h , resting in the lower extremity of the transverse supporting-bars d , of the dumping-sections d' , each having formed therein a series of recesses d^6 and each having a series of hinge-bars d^4 , each of which is provided with a projecting hinge-eye d^7 , substantially as and for the purposes set forth.

6. The combination, with the shaft or hinge-rod h , of the dumping-sections d' , each having edge-groove d^8 and protecting-plate d^{10} ,

substantially as and for the purposes described.

7. The combination, with the shaft or hinge-rod h , of the oppositely-placed sections d' d' ,
5 each having hinge-bars d^4 and recesses d^6 ,
substantially as and for the purposes specified.

8. The combination, with the bed-frame of the car, of the transverse supporting-bars d ,

each having downturned ends d^{12} d^{12} , engaging the exterior vertical face of the outer longitudinal sills, substantially as described and shown.

JACOB J. SOUDER.

Witnesses:

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